

WHAT IS CLAIMED IS:

1. An image comparison apparatus comprising:  
observation image capturing means for capturing at  
least one of a macroscopic observation image of a  
specimen or a microscopic observation image of the  
specimen;  
photographing means for photographing an  
observation image captured by the observation image  
capturing means;  
10 recording means for recording a reference image  
prepared in advance; and  
display means for displaying the observation image  
photographed by the photographing means as a comparison  
image, and also displaying the reference image recorded  
15 on the recording means on the display means so as to  
allow comparison between the comparison image and the  
reference image.
2. The apparatus according to claim 1, wherein  
the observation image capturing means comprises at  
20 least one of  
illumination means for irradiating the specimen  
with light and making scattered light therefrom  
observable,  
illumination means for irradiating the specimen  
25 with light and making fluorescence therefrom  
observable,  
illumination means for irradiating the specimen

with polarized light and making scattered light therefrom observable, and

illumination means for transmitting light through the specimen and making transmitted light observable.

5       3. The apparatus according to claim 1, wherein the display means displays the comparison image as a live image.

10      4. The apparatus according to claim 1, wherein the display means displays an addition image obtained by adding the comparison image and the reference image at an arbitrary ratio.

15      5. The apparatus according to claim 1, wherein the display means alternately displays the comparison image and the reference image at predetermined time intervals.

6. The apparatus according to claim 1, wherein the display means displays at least one of the comparison image and the reference image after adjusting brightness by integration processing.

20      7. The apparatus according to claim 1, wherein the display means displays the comparison image and the reference image upon further superimposing a lattice with a predetermined spacing thereon.

25      8. The apparatus according to claim 1, wherein the display means performs subtraction between the comparison image and the reference image and performs display on the basis of the subtraction result.

9. An image comparison apparatus comprising:
  - a macro-observation unit which captures a macroscopic observation image of a specimen;
  - 5 a micro-observation unit which captures a microscopic observation image of the specimen;
  - a stage which moves the specimen between the macro-observation unit and the micro-observation unit;
  - 10 a camera which photographs an observation image of a specimen on the stage which is captured by the macro-observation unit and the micro-observation unit;
  - optical path switching means for switching an optical path from the macro-observation unit or the micro-observation unit to the camera;
  - 15 a recording medium which records an observation image photographed by the camera as a reference image; and
  - display means for displaying the observation image photographed by the camera as a comparison image and also displaying the reference image recorded on the recording medium so as to allow comparison between the images.
10. The apparatus according to claim 9, further comprising at least one of a polarization illumination source, epi-illumination source, fluorescence illumination source, focal illumination source, transmitted illumination source, and infrared illumination source, and means for operating brightness

and ON/OFF operation of the illumination source.

11. The apparatus according to claim 9, wherein  
the display means includes

5 a first image display area in which a reference  
image is displayed,

a second image display area in which a comparison  
image is displayed, and

10 a third image display area in which the reference  
image and the comparison image are simultaneously  
displayed, and

allows comparison and observation of the reference  
image and the comparison image in the third display  
area.

12. The apparatus according to claim 11, wherein  
15 the apparatus further comprises

split image display means having a function  
capable of vertically or horizontally splitting the  
third image display area of the display means,  
displaying the split first and second partial areas as  
20 a reference image display area and a comparison image  
display area, respectively, and vertically and  
horizontally moving positions of the images,

overlap image display means having a function  
capable of displaying, in the third image display area,  
25 an image obtained by adding an image obtained by  
multiplying a luminance ratio between a reference image  
and a comparison image by  $m/n$  where  $n$  and  $m$  are

arbitrary integers ( $n \geq m$ ) to an image obtained by multiplying the luminance ratio by  $(n - m)/n$ , and gradually adjusting the luminance ratio between the reference image and the comparison image by changing  
5 the integers n and m, and

image switching display means having a function of capable of alternately switching and displaying a reference image and a comparison image in the third image display area at predetermined time intervals, and  
10 adjusting an image switching time, and

allows comparison and observation of the reference image and the comparison image in the third image display area.

13. An image comparison method comprising:  
15 capturing at least one of a macroscopic observation image and a microscopic observation image of a specimen;

photographing the captured observation image; and  
displaying an entire or part of a comparison image  
20 obtained from the photographed observation image and an entire or part of a reference image prepared in advance so as to allow comparison therebetween.

14. The method according to claim 13, wherein a comparison image or reference image obtained from the observation image is displayed after brightness is  
25 adjusted by integration processing.

15. The method according to claim 13, wherein the

comparison image and the reference image are displayed while a lattice with a predetermined spacing is superimposed thereon.

16. The method according to claim 13, wherein the  
5 displaying includes displaying at least one of the comparison image and the reference image in the form of a live image.

17. An image comparison method comprising:  
10 capturing a macroscopic observation image or a microscopic observation image of a specimen;  
photographing the captured observation image; and displaying an addition image obtained by adding a comparison image obtained from the photographed observation image to a reference image prepared in  
15 advance at an arbitrary ratio.

18. The method according to claim 17, wherein a comparison image or reference image obtained from the observation image is displayed after brightness is adjusted by integration processing.

20 19. The method according to claim 17, wherein the comparison image and the reference image are displayed while a lattice with a predetermined spacing is superimposed thereon.

25 20. An image comparison method comprising:  
capturing a macroscopic observation image or a microscopic observation image of a specimen;  
photographing the captured observation image; and

alternately displaying a comparison image obtained from the photographed observation image and a reference image prepared in advance at predetermined time intervals.

5        21. The method according to claim 20, wherein a comparison image or reference image obtained from the observation image is displayed after brightness is adjusted by integration processing.

10        22. The method according to claim 20, wherein the comparison image and the reference image are displayed while a lattice with a predetermined spacing is superimposed thereon.

15        23. An image comparison method comprising:  
                  capturing a macroscopic observation image or a microscopic observation image of a specimen;  
                  photographing the captured observation image; and  
                  performing subtraction between the photographed observation image and a reference image prepared in advance, and performing displaying on the basis of the subtraction result.

20        24. An image comparison method which is applied to a system in which at least two image comparison apparatuses and an image server capable of storing at least one image are connected through a network capable of data communication, wherein  
                  in each of the image comparison apparatuses, a reference image used for comparison with a comparison

image acquired from a specimen can be read out from the image server through the network.

25. A computer program product configured to store program instructions for execution on a computer system enabling the computer system to perform:

5 capturing at least one of a macroscopic observation image and a microscopic observation image of a specimen;

10 photographing the captured observation image; and displaying an entire or part of a comparison image obtained from the photographed observation image and an entire or part of a reference image prepared in advance so as to allow comparison therebetween.

15 26. The program according to claim 25, wherein a comparison image or reference image obtained from the observation image is displayed after brightness is adjusted by integration processing.

20 27. The program according to claim 25, wherein the comparison image and the reference image are displayed while a lattice with a predetermined spacing is superimposed thereon.

25 28. The program according to claim 25, wherein the displaying includes displaying at least one of the comparison image and the reference image in the form of a live image.

29. A computer program product configured to store program instructions for execution on a computer system

enabling the computer system to perform:

capturing a macroscopic observation image or a microscopic observation image of a specimen;

photographing the captured observation image; and

5 displaying an addition image obtained by adding a comparison image obtained from the photographed observation image to a reference image prepared in advance at an arbitrary ratio.

10 30. The program according to claim 29, wherein a comparison image or reference image obtained from the observation image is displayed after brightness is adjusted by integration processing.

15 31. The program according to claim 29, wherein the comparison image and the reference image are displayed while a lattice with a predetermined spacing is superimposed thereon.

32. A computer program product configured to store program instructions for execution on a computer system enabling the computer system to perform:

20 capturing a macroscopic observation image or a microscopic observation image of a specimen;

photographing the captured observation image; and

25 alternately displaying a comparison image obtained from the photographed observation image and a reference image prepared in advance at predetermined time intervals.

33. The program according to claim 32, wherein a

comparison image or reference image obtained from the observation image is displayed after brightness is adjusted by integration processing.

34. The program according to claim 32, wherein the  
5 comparison image and the reference image are displayed while a lattice with a predetermined spacing is superimposed thereon.

10 35. A computer program product configured to store program instructions for execution on a computer system enabling the computer system to perform:

capturing a macroscopic observation image or a microscopic observation image of a specimen;  
photographing the captured observation image; and  
15 performing subtraction between the photographed observation image and a reference image prepared in advance, and performing displaying on the basis of the subtraction result.

20 36. A computer program product which is applied to a system in which at least two image comparison apparatuses and an image server capable of storing at least one image are connected through a network capable of data communication, wherein  
15

25 in each of the image comparison apparatuses, a reference image used for comparison with a comparison image acquired from a specimen can be read out from the image server through the network.

37. An image comparison method, wherein a display

window designated by a control apparatus connected,  
through a network capable of data communication, to  
an apparatus including photographing means for  
photographing an observation image of a specimen,  
5 display means for comparing the photographed  
observation image, and means for communicating a  
display method for image comparison is displayed by  
communication.